Journal of Materials Processing Technology, 27 (1991) 313–314
Elsevier

Contents

Preface vii

Session 1. Perspectives

Mechanics of plastic deformation in metal forming processes: Experimental and numerical methods
A.H. Shabaik (Los Angeles, CA, USA) 3
Capabilities and applications of FEM code DEFORM: The perspective of the developer
S.I. Oh, W.T. Wu, J.P. Tang and A. Vedhanayagam (Columbus, OH, USA) 25
Application of finite element method in forging: An industry perspective
J. Walters (Houston, TX, USA) 43

Session 2. Fundamental Aspects

Composite finite elements for rigid–plastic analysis
T. Aizawa and J. Kihara (Tokyo, Japan) 55
Automatic remeshing in finite element simulation of metal forming processes by guide grid method
J.S. Park and S.M. Hwang (Pohang, Korea) 73

Session 3. Forging Analysis

Application of numerical methods for the aluminum casting/forging process
S. Fujikawa, Y. Kitamura and S. Shimamura (Yokohama, Japan) 93
Finite element modelling of forming processes of solid metal with liquid phase
K. Mori, K. Osakada and M. Shiomi (Osaka, Japan) 111
Three-dimensional finite element modelling of the forging process with automatic remeshing
T. Coupez, N. Soyris and J.-L. Chenot (Valbonne, France) 119

Session 4. Semi-Finishing

Analysis of rotor shaft forging by rigid–plastic finite element method
Y. Mitani, V. Mendoza (Mexico City, Mexico) and K. Osakada (Osaka, Japan) 137
Investigation of ring rolling by pseudo plane-strain FEM analysis
T.C. Tszeng and T. Altan (Columbus, OH, USA) 151
Roll pass evaluation for hot shape rolling processes
P. Xin, T. Aizawa and J. Kihara (Tokyo, Japan) 163
Simulation of a tube drawing process by the finite element method
K. Sawamiphakdi, G.D. Lahoti and P.K. Kropp (Canton, OH, USA) 179

Session 5. Cold Forging

Elastic–plastic FEM analysis of the heading process and the die-forging process of a gear

blank
M. Gotoh and Y. Shibata (Gifu, Japan) 193
Process sequence design in a heading process
B.-S. Kang (Pusan, Korea) 213
The influence of die geometry on cold extrusion forging operations: FEM and experimental results
G. Maccarini, C. Giardini, G. Pellegrini and A. Bugini (Brescia, Italy) 227
Application of an elasto-plastic finite-element code to the simulation of metal forming processes
K. Lange, M. Herrmann, P. Keck and M. Wilhelm (Stuttgart, Germany) 239

Session 6. Sheet Forming

Investigations on the sheet bending process with elastic tools
M. Geiger, U. Engel and A. vom Ende (Erlangen, Germany) 265
Comparisons of elastic-plastic and rigid-plastic implicit FEM simulations in sheet forming applications
M.J. Saran (Columbus, OH, USA) 279
Finite element simulation of deep drawing of stainless steel sheet with deformation-induced transformation
K. Shinagawa, K. Mori and K. Osakada (Osaka, Japan) 301

Author Index 311